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IS 7154 (1994): Mains-operated electric hair-dryers [ETD
32: Electrical Appliances]

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भारतीय मानक

बिजली के मेन से चालित केश शुष्कक

(पहला पुनरीक्षण)

Indian Standard

MAINS OPERATED ELECTRIC HAIR DRYERS

(*First Revision*)

UDC 646.72 : 687.53·0543 : 614·825

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

Electrical Appliances Sectional Committee, ET 32

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Electrical Appliances Sectional Committee had been approved by the Electrotechnical Division Council.

This standard covers the general safety and performance requirements of mains operated electric hair dryers.

This standard was originally published in 1973. As per the decision of the third meeting of Electrotechnical Division Council, a separate safety standard on appliance for skin and hair care has been brought out. In the first revision of this composite standard instead of giving details of safety requirements, reference has been made to safety standard. IS 302-2-23 (1993) 'Safety of household and similar electrical appliances : Part 2 Particular requirements, Section 23 Appliances for skin and hair care'.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**AMENDMENT NO. 1 AUGUST 2005
TO
IS 7154 : 1994 MAINS OPERATED ELECTRIC HAIR
DRYERS**

(First Revision)

(Page 2, clause 11.2) — Substitute the following for the existing matter:

‘The hair dryer is operated, with the heating element switched on at the highest setting in accordance with the conditions of adequate heat discharge and at a voltage equal to 1.1 times the rated voltage for 48 h. The operating time shall consist of 30 min running as per 11.7 of IS 302-2-23 and sufficient time to allow the hair dryer to cool down to the room temperature.

It is then operated under the same operating conditions for a further period of 48 h, but at a voltage equal to 0.9 times the rated voltage.’

(Page 2, clause 11.2.1) — Delete.

(ET 32)

Indian Standard

MAINS OPERATED ELECTRIC HAIR DRYERS

(First Revision)

1 SCOPE

1.1 This standard covers mains operated hair dryers designed for connection to supplies at voltages not exceeding 250 volts ac single-phase, 50 Hz or dc.

1.2 It does not apply to hood dryers and similar hair drying machines used in commercial and/or animal hair process.

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

<i>IS No.</i>	<i>Title</i>
302-1 (1979)	Safety of household and similar electrical appliances : Part 1 General requirements (<i>fifth revision</i>)
302-2-23 (1993)	Safety of household and similar electrical appliances: Part 2 Particular requirements, Section 23 Appliances for skin or hair care

3 TERMINOLOGY

3.0 For the purpose of this standard, the following definitions shall apply in addition to those specified in 2 of IS 302-2-23 (1993).

3.1 Rated Duty Period

The duration for which the hair dryer is designed to work continuously under rated load without exceeding specified temperature-rise.

3.2 Rated Air Delivery

The quantity of air, hot or cold, delivered by the hair dryer, under conditions of normal load and adequate heat discharge per unit of time. This is generally expressed in cubic metres per minute.

4 GENERAL REQUIREMENTS

4.1 Clause 3 of IS 302-2-23 (1993) shall apply.

5 GENERAL NOTE ON TESTS

5.1 Clause 4 of IS 302-2-23 (1993) shall apply.

6 RATING

6.0 For the purpose of this standard, the following shall also apply in addition to those specified in 5 of IS 302-2-23 (1993).

6.1 Rated Duty Period

Rated duty period shall not be less than half an hour.

6.2 Rated Frequency

Where the hair dryer is designed for use purely on ac circuits, it shall be 50 Hz.

6.3 Rated Air Delivery

The rated air delivery shall not be less than 0.5 cubic metre per minute of room air.

7 CLASSIFICATION

7.1 Clause 6 of IS 302-2-23 (1993) shall apply.

8 MARKING

8.1 For the purpose of this standard, the following shall also apply in addition to those specified in 7 of IS 302-2-23 (1993).

8.2 Marking of the Control Switches

The 'on' and 'off' positions of control switch(es) shall be clearly marked. If any speed and/or heat controls are provided, the various positions shall be clearly and indelibly marked.

8.3 The hair dryers may also be marked with the Standard Mark.

8.3.1 The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

9 SAFETY REQUIREMENTS

9.1 The hair dryers shall comply with the requirements given in 8 to 31 of IS 302-2-23 (1993).

10 PERFORMANCE

10.1 The dryer is connected to the supply at normal rated voltage for normal load. The quantity of 100m air displaced is measured, at the input port by an airflow meter or air-velocity meter.

10.2 The meter port is adjusted to the inlet port of the dryer by suitable reducer/expander cone which have a length of 300 mm \pm 5 percent. The reducer expander cone shall have any other openings through which air can leak.

10.3 A suitable thermocouple probe or thermometer of suitable range (20 to 200°C) is placed at a distance of 50 mm from the outlet port so that the air discharge surrounds the mercury bulb completely.

10.4 The readings of the flow meter and the thermometer are taken after the dryer has worked for at least 15 minutes from starting or at the first operation of the thermostat, if provided. In this duration, the cutouts shall not have acted. (The dryer is deemed to have failed if the cutout operates within the rated duty period).

10.5 The values shall be in accordance with values specified in **6.3**.

10.6 The temperature of the outlet air, the 'Hot' operation shall not exceed 85°C during normal operation.

11 ENDURANCE

11.1 Hair dryers shall be so constructed that, in normal use, there will be no electrical or mechanical failure that might impair compliance with this standard. The insulation shall not be damaged and contacts and connections shall not work loose as a result of heating, vibration, etc.

11.1.1 Therefore, overload protection devices shall not operate under normal running conditions.

11.1.2 Compliance is adequately checked by the tests of the other clauses of this standard.

NOTE — For the purpose of endurance test on heating appliances, the operating time for the test specified in **11, 12 and 13** of IS 302-2-23 (1993) is included.

11.2 The hair dryer is operated, with the heating elements switched ON, in accordance with condition of adequate, heat discharge and at a voltage equal to 1.1 times voltage for 48 h, reduced by the running time necessary for the test of **11, 12 and 13** of IS 302-2-23 (1993).

11.2.1 It is then operated under the same condition, but at a voltage equal to 0.9 time rated voltage for a further period of 48 h. The opera-

tion may be continuous or for a corresponding number of periods, each period being not less than 8 h.

11.3 During the test of **11.2**, overload protection devices, if any, shall not operate.

11.4 After the test of **11.2**, the hair dryer shall withstand the test of electric strength specified in **16.4** of IS 302-1 (1979).

12 FINISH

12.1 The external finish used on metal components shall be of non-hazardous and also of heat and moisture resisting nature and shall not be adversely affected by variation in temperature occurring under normal operating conditions or after the endurance test.

12.1.1 Compliance shall be checked by visual inspection after endurance test.

13 TESTS

13.0 Categories of Tests

Tests are classified as type, acceptance and routine tests.

13.1 Type Tests

The tests specified in Table I shall constitute the type tests and shall be carried out on two samples of hair dryers of the same type and rating selected preferably at random from a regular production lot. Before commencement of the tests, the hair dryers shall be visually examined and inspected for obvious visual defects in respect of components, parts and their assembly, construction, mechanical hazards, markings, provision of suitable terminals for supply connections, earthing and the effectiveness of screws and connections. The external surface finish shall be even and free from finishing defects.

Table 1 Schedule of Type Tests

Sl No.	Test	Clause Reference
1.	Safety requirements	8 to 31 of IS 302-2-23 (1993)
2.	Performance	10
3.	Endurance	11
4.	Finish	12

13.1.1 Criteria of Acceptance

Both samples shall successfully pass all the type tests for proving conformity with the requirements of the standard. If any of the samples fail in any of the type tests, the testing authority, at its discretion, may call for fresh samples not exceeding twice the original number and subject them again to all tests or to the

test(s) in which failure(s) had occurred. No failure should be permitted in the repeat test(s).

13.2 Acceptance Tests

The following shall constitute the acceptance tests:

<i>Test</i>	<i>Clause Reference</i>
a) Protection against electric shock	8 of IS 302-2-23 (1993)
b) Input	10 of IS 302-2-23 (1993)
c) Temperature-rise	11 of IS 302-2-23 (1993)
d) Insulation resistance and electric strength at operating temperature	13 of IS 302-2-23 (1993)

- e) Moisture resistance 15 of IS 302-2-23 (1993)
- f) Insulation resistance and 16 of IS 302-2-23 electric strength (after (1993) humidity treatment)
- g) Provision for earthing 27 of IS 302-2-23 (1993)

13.2.1 A recommended sampling procedure for acceptance tests is given in Appendix B of IS 302-1 (1979).

13.3 Routine Tests

The following shall constitute the routine tests:

<i>Test</i>	<i>Clause Reference</i>
a) Protection against electric shock	8 of IS 302-2-23 (1993)
b) High voltage	13.2.2 of IS 302-1 (1979)
c) Provisions for earthing	27 of IS 302-2-23 (1993)

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